

Susan Nash-Ditzel **Metacognitive Reading Strategies Can Improve Self- Regulation**

This case study explores the impact of metacognitive reading strategies on the ability of five college students in developmental courses to self-regulate while reading. Instruction in reading strategies derived from past research on metacognition was scaffolded, based on Pearson and Gallagher's (1983) model of gradual release of responsibility. Through the use of interviews, think-aloud protocols, informal observations and document analysis, the following outcomes of instruction were uncovered: increased knowledge of reading strategies, ability to use the strategies successfully to change overall reading behavior, and understanding of the strategies' value. The combination of these outcomes seems to have contributed to the students' ability to self-regulate while reading.

While the number of freshmen entering college requiring developmental reading courses remains high (see NCES report, 2003), there is little research to guide the design and content of such courses so that they are beneficial to students (Grubb, 2001; Paulson, Laine, Biggs, & Bullock, 2003). Reading instructors are left to wonder what really works for their students who test into developmental reading courses. Moreover, few researchers have investigated the connection between findings in the plethora of recent reading comprehension studies conducted with elementary school students and potential implications for students in college-level developmental reading courses. Could reading strategies that seem to assist younger students also improve college students' reading behaviors? Could such strategies enable college students to become self-regulating readers, that is, readers who monitor and control their reading processes to comprehend texts?

In this qualitative case study, in which the researcher and observer was also the course instructor, findings from past reading research conducted with elementary-aged children were applied to a developmental reading course at the college level. The goal was to guide students to transform their reading behaviors and become self-regulating readers. Two studies on metacognition conducted with younger children were particularly helpful in deciding how to proceed in the college-level course.

Metacognition: Revisiting Two Landmark Studies

In two landmark studies (Paris, Cross, & Lipson, 1984; Pressely et al., 1992), metacognitive reading strategies were taught to elementary students using a scaffolded approach. Teachers in both studies explicitly taught students specific reading strategies, paying close attention to three critical elements of metacognition: the declarative, procedural, and conditional knowledge of each strategy (Jacobs & Paris, 1987). *Declarative knowledge* is defined as propositional information one possesses about a certain task, such as knowing “that” utilizing prereading strategies prior to reading a text will greatly aid in comprehension. *Procedural knowledge* is one’s thinking processes. An example would be knowing “how” to implement prereading strategies prior to reading a text. Finally, *conditional knowledge* is defined as awareness of factors affecting learning. Knowing “why” or in what circumstances prereading strategies increase comprehension of a text would be considered conditional knowledge. Understanding not only what the strategies are but also how, when, where, and why they are used allows students to form a conceptual foundation of successful reading (Borkowski & Muthukrishna, 1992; Jacobs & Paris, 1987).

Paris et al. (1984) embedded an additional element of metacognition into their experimental instructional design, an aspect they called self-management of thinking (Jacobs & Paris, 1987). This aspect of metacognition allows students to actively assess the variables involved in a certain task by planning, evaluating, and regulating their own comprehension in strategic ways. According to Jacobs and Paris, planning occurs when a reader determines which cognitive strategy would be most appropriate to use to reach a particular cognitive goal. An example of strategic planning would be deciding whether using context clues would be sufficient in defining the meaning of an unknown word or if locating the word in the dictionary is necessary. Evaluation involves an assessment of the task, its difficulty relative to the reader’s ability, and the effectiveness of a chosen strategy for the task (Paris et al., 1992). Through regulating, readers monitor their progress and revise their strategic planning, depending on the outcome of their evaluation. For

instance, after concluding that context clues have yielded an insufficient understanding of an unknown word, the reader then decides that locating the word in a dictionary would be an effective strategy to use to better understand the meaning of the word. These metacognitive processes conceptualize the reading strategies utilized in the following focal study.

Pressley et al. (1992) and Paris et al. (1984) implemented a variety of reading strategies in their programs. Drawing from Brown, Palinscar, and Armbruster's (1984) research, Paris et al. implemented six strategies deemed essential to a student's comprehension of text: (1) understanding the purpose of reading, (2) activating relevant background knowledge, (3) allocating attention to main ideas, (4) critically evaluating, (5) monitoring comprehension, and (6) drawing inferences. Pressley et al. utilized a slightly different set of strategies, promoting summarization, prediction, visualization, thinking aloud, story grammar analysis, text structure analysis, prior knowledge activation, and self-questioning. Strategies taught to the participants in the present study were derived from both studies and are discussed in greater detail below.

Method

Participant Selection

Five college freshmen (19-20 years old) were selected as subjects in this 10-week research project. Based on their scores on a mandatory entrance exam, these students were required to attend a two semester developmental reading class. These five students were chosen based on specific criteria. It was required that potential participants attend both the first and second semester developmental reading classes taught by the researcher, demonstrate regular class attendance, consistently complete work on time, and participate in class activities on a regular basis during the first semester. Additionally, only those students who demonstrated average ability throughout the first semester, scoring neither extremely low nor extremely high on assignments and assessments were considered. Students struggling with the curriculum or working through it with great ease were not considered for inclusion in the study.

Participants

Each of the five participants, Darren, Liz, Jillian, Ryan, and Mark, had received some support for reading during their elementary and/or middle school years. Darren had been placed in pull-out special education courses from the first grade onwards. Many times these classrooms were designed primarily for students with behavioral challenges. Darren, a soft-spoken and mild mannered student, somehow slipped through

the cracks and graduated from high school unable to correctly recite the alphabet. At the beginning of the study, Darren was unsure if he would be able to pass a college course. Liz had also received special education, and experienced an inclusion, or push-in model of support. She was initially unsure why she needed the developmental reading course, believing her reading ability was adequate for college. Jillian recalled that she enjoyed reading as a young child, yet as she progressed in school she realized her reading skills were not equal to those of her peers. She received basic skills support for reading in middle school. Upon entering college, Jillian reported her feelings towards herself as a reader as very poor. Ryan and his family relocated numerous times during his childhood and by eighth grade he had been in nine different schools. He believed that the constant relocating left "little gaps" in his learning and that this was why he needed the developmental reading course. Mark, who had recently relocated to New Jersey, was not eager to attend college and was doing so primarily to appease his parents. He said that he had never finished reading a book in his life. He received basic skills support in reading during middle school, although he admitted that he did not take the classes very seriously. Mark complained of "dazing off" [sic] while reading, then becoming frustrated and confused, and ultimately giving up.

Setting

The setting of this study was a community college in central New Jersey. The college offers an open-door policy allowing any student, regardless of skill or ability, to attend classes. It is a large college, with more than 13,000 students, most of whom (87.9%) are matriculated, and more than half (55.6%) plan to transfer to a four-year college or university. The student body is made up of 56% females and 43% males with a slight majority (56%) falling into the 21-or-younger age bracket. Seventy-three percent of the students attending the college are Euro-American, and 10% are African American.

Instruction

Taking past research into consideration, a two-semester reading course was designed for college freshmen who tested into developmental reading. Over the course of two semesters, the following strategies were taught: connecting personal schemata to text (background knowledge), implementing fix-up strategies for unknown word meanings or confusing sentences, asking questions of the text, drawing inferences from the text, summarizing/synthesizing, and determining importance of a text through the use of marginal notes (annotating). Each strategy was

first introduced and explained using a variety of examples and instructor think-alouds with particular focus on when, where and how to use the strategy in different reading situations. Each strategy's value to the reader was also emphasized. The students then worked collaboratively in pairs or small groups, practicing a strategy while using a variety of authentic college texts. Finally, the students implemented each strategy in an independent assignment that was graded. Teacher/student conferences were held daily to review students' progress with each strategy.

Collection and Analysis of Information

As this was a case study, multiple sources of information about the five students' reading abilities were used to understand the impact that the metacognitive reading strategies had on these college students' reading behaviors, in particular, their ability to self-regulate while reading.

Interviews, think-aloud protocols, informal observations, and document analyses were utilized during this 10 week study.

Interviews with the students before and after the 10 weeks of instruction were the primary source of information for this study. Following Patton's (1990) model for the interview guide approach, a predetermined set of questions was written in outline form; however, the sequence and exact wording of the questions were dependent upon the participants' reactions and responses.

Drawing from verbal protocol research by Pressley and Afflerbach (1995), two separate think-aloud protocols were conducted with each participant. Think-aloud protocols were administered prior to each of the two interviews. The purpose of the think-alouds was to determine what metacognitive reading strategies the students used in the process of reading. The protocol texts were taken from the Qualitative Reading Inventory (Leslie & Caldwell, 2004). Some debate exists on whether students should be instructed to stop and self-report in a structured way or be allowed to self-report when they choose during a think-aloud. The issue primarily involves the impact each approach has on metacognition (Pressley & Afflerbach, 1995). To create a more natural reading experience, I asked students to self-report freely rather than at intervals chosen by the investigator.

Student documents were another important source of information for this case study. The student documents accessed for this study consisted of notebooks, textbooks, and other study materials from the students' other college courses. These documents were analyzed for evidence of reading strategy usage (e.g., annotations in the margins). Additionally, students were asked to complete a comprehension assessment after the think-aloud protocols, and this assessment also constituted a document

reviewed for evidence of learning. Informal observations took place during each class session. Information from these observations did not aid in directly answering the specific research question but enhanced the depth of each participant's case by capturing classroom behaviors related to their reactions, struggles, and successes while learning the reading strategies.

Data were initially separated by case and by data source. Codes were derived inductively as patterns emerged from the various assessments and interviews. These codes included but were not limited to themes such as value of strategies, appropriateness of strategy use, and understanding of strategies. Coded observations were then analyzed across the five cases to answer the research question comprehensively.

Results

Using Strategies to Change Overall Reading Behavior

The participants utilized a wide variety of strategies during the first and second think-alouds, yet some strategies appeared more frequently than others. The three most frequently used strategies were connecting schema, making inferences, and activating background knowledge prior to reading. It is impossible to say with certainty why these were the most preferred strategies, but one possible explanation is that they were the first strategies introduced in the reading course. Thus, they were modeled and practiced more frequently than the other strategies.

Connecting schema. In the first protocol, the participants tried to implement strategies, yet, more often than not, they were unable to do this successfully. Many times Ryan would integrate his own personal schema with the author's ideas. However, his background knowledge deviated so far from the topic of the passage that the meaning of the text was clouded rather than clarified. The example below illustrates this phenomenon. (Text in bold reflects what the student read aloud. Text in italics reflects the participant's spoken thoughts):

“Every night,’ recalled a Jewish girl who fled Russia, ‘they were chasing after us, to kill everyone.”

The girls left Russia because of the high [occurrence of] rape and all the statutory rapes that were going on. Older people were trying to get the younger girls to work for them and to make babies so that they can produce more workers out in the world. And they were [be] coming pretty much a perverted people.

The passage said nothing of females being raped or being forced to produce offspring to support an increasing workforce. In fact, this section of the text discussed religious persecution against the Jewish population in Russia that led to an increase in immigration to the United

States. The first think-aloud protocol painfully demonstrated just how far Ryan's inaccurate background knowledge led him off the subject of the text. In our second interview, Ryan actually commented that although learning how to connect his schema was helpful to him when trying to understand a text, "it can also be really wrong [at] the same time."

Similarly, Darren's background knowledge only confused the author's message:

"The Armenians lived in the Ottoman Empire, present day Turkey. Between the 1890s and the 1920s, the Ottoman government killed a million or more Armenians [mispronounced]."

This reminds me of a couple of weeks ago. There was this Turkish girl that was an exchange student, and she was staying at my cousin's house. And she was kind of like me, like into the same music—I guess over there, they'd call her a punk girl—she didn't dress like it too much here, but back there she did. And people would come up and say that like, "Do you eat cats and drink blood?" And that was the first question like she kind of asked. And I'm like, "Oh well, I do that." I made a funny joke to her.

In this example, Darren digressed too far from the intended message to make meaning of the text. His connection to the text was unrelated to the intended meaning and was quite distracting. As a result, perhaps, Darren and Ryan both failed to correctly answer the comprehension assessment question for this section of text. It is probable that because they became so distracted with their stories, their interpretation of the author's message was off target.

Mark and Jillian also tried to integrate their background knowledge, but instead of elaborate stories such as Ryan and Darren's, they appeared to make "think-aloud" statements merely because they were instructed to do so. I questioned whether or not these statements were true or helped them in any way to comprehend the text. On many occasions, Jillian and Mark would read a section of text and make a comment such as, "I remember learning all about that in history class." Their thoughts ended there, however, making it impossible to deduce whether or not Jillian or Mark did indeed learn similar ideas in their past history classes. If they did have prior knowledge, it did little to help them answer the assessment questions that followed the text.

As the semester progressed, the students continued to practice the aforementioned strategies such as connecting schema and activating background knowledge. Through modeling, the researcher demonstrated not only what each strategy was, but also how, when, and where each strategy could best be used. Fortunately, vague statements and distracting stories did not occur in the second think-aloud protocol. In the following example, Mark again connected his schema with the text

but did so with much more detail and clarity:

“Ship owners jammed up to 2,000 people in steerage, as the airless rooms below the decks were called.”

All right. That kinda reminds me of in history, when I was in maybe high school, I learned about what they used to do to people who used to come from Italy or whatever or Mexico. They used to just put them all on the boat, and they'd live in the bottom. And whenever they had to go to the bathroom, they'd just go, and they'd stack people up on top of each other. People died from it.

As with all the participants, Mark no longer made statements in the think-aloud simply because it was required. The participants' attempts to connect their prior knowledge with the text were much richer and more closely aligned with the author's meaning. Below was one such instance from Ryan's second think-aloud:

“Immigrants adjusted to their new lives by settling in neighborhoods with their own ethnic group.”

You know how Jersey has Newark? It's all Portuguese people. And then like up in Patterson, it's where all the African-Americans live.

In the above example, Ryan utilized knowledge that was relevant to him and linked it to the text in an attempt to make the passage more concrete. This behavior occurred quite often across the participants' second think-alouds. It is conceivable that due to the participants appropriately connecting their schema to the text they increased their success when answering the comprehension questions after the second think-aloud.

Inference. Not only did the participants increasingly rely on effectively connecting their personal schema to assist them in understanding the passage, often they found making an inference would be more beneficial. It was obvious in the first protocol that this strategy was not refined, and as a result, it did not seem to be helpful with regard to comprehension. As seen below, Liz tried to make an inference but in reality simply restated what the author had already said:

“After gold was discovered in California, thousands of Chinese poured into California attracted, like so many others, by tales of “mountains of gold.”

I guess they wanted to find the gold.

By contrast, the inferences Liz drew from the second protocol constituted instances of reading between the lines and going beyond the text (as opposed to merely restating the author's words).

Most immigrants stayed in the cities where they landed.

I guess it must've been cheap land, or cheap real estate, so they were buying.

Evidence of richer, stronger inferences was apparent across the think-alouds. Many times the participants would draw out an inference that aligned exactly with an assessment question; hence, they were able to answer these implicit questions with ease. This finding was encouraging in that Hock and Mellard (2005) claimed that drawing inferences is one of the most important reading comprehension strategies for adult literacy outcomes.

Activating background knowledge prior to reading the text.

Perhaps the most apparent change in reading behavior for three of the participants was that in the second protocol they actually read the titles and subtitles. This behavior did not occur in the first think-aloud. Mark, Ryan, and Liz stopped to talk a bit about the titles, activating their background knowledge before they began reading the second protocol. Ryan admitted he “never used to read titles” as a way to activate his background knowledge on the subject of a text. Rather he would “just jump right into” reading. He believed that “reading the [titles] now helps a lot” with regard to his comprehension of a text. Below was an example of activating background knowledge prior to reading from Mark’s second think-aloud:

“Adjusting to New Land.”

I guess a lot of immigrants had to do that when they move here, because they probably don't even know how to speak English.

In his final interview, Mark reported that one of the ways he kept focused while reading was to continue to “keep in your mind the background knowledge.” Mark was noticeably focused in the second protocol. At the end, he answered all 10 of the assessment questions with unequivocal certainty. As compared to the first think-aloud where he had answered only four questions correctly, this was a great improvement.

Improved Comprehension

Although every participant was not able to answer all of the assessment questions correctly following the second protocol, all five students improved dramatically from their earlier performances. Darren and Ryan, who had been able to answer correctly only three of the 10 questions in the first protocol, each answered 8 correctly in the second. Liz, who with six correct answers scored the highest of all the participants in the first protocol, improved to nine correct in the second protocol.

After close analysis of the think-aloud information, what became apparent was that the areas of the text where the participants stopped to think aloud were, more often than not, areas they were then able

to remember when it came time to answer the assessment questions. This finding suggested that using the strategies facilitated comprehension of the text. This observation corroborated the findings of at least some other researchers who have sought to instruct students in using metacognitive strategies to aid in comprehension (Garner & Alexander, 1989; Pressley, Snyder, & Cariglia-Bull, 1987).

On the Road to Self-Regulation

Metacognitive research has long supported the conclusion that successful metacognitive thinking requires three types of knowledge: declarative knowledge, procedural knowledge, and conditional knowledge (Nist & Simpson, 2000). As seen in the examples drawn from the first protocol, the participants all appeared to possess some declarative knowledge of certain strategies, such as knowing that prior knowledge could be linked to the text, yet they lacked procedural and conditional knowledge. Such limitations in strategy knowledge can be seen in Liz's first protocol, as she focused on a single word within a paragraph and digressed into an unrelated story:

"There, after "1880," [sic] they saw the giant Statue of Liberty in the harbor. The statue was a gift from France to the United States. The Statue of Liberty became a symbol of hope and freedom offered by the United States."

I remember in fifth grade we did this play, and because I was the tallest one in the class, I was the Statue of Liberty. It was so funny.

Liz appeared to possess a declarative knowledge of connecting her personal schema with the text but seemingly did not understand how to use this strategy appropriately or to know where its use might be most beneficial. The participants' procedural and conditional knowledge was bolstered at the end of the study, as their use of strategies was better suited to the particular text. An example of appropriate usage of a strategy can be seen in the following excerpt from Mark's second think-aloud:

"Children assimilated more quickly than parents."

I was just gonna say that, that adults, they—because they're so much older than kids, so they know what they know, and kids have more time to develop the American way.

"They learned English in schools and then helped their families learn to speak it. Because children wanted to be seen as Americans, they often gave up customs their parents honored."

I work in a supermarket now, and whenever a Spanish family or a Mexican family comes in, it's always the kids speak English and the parents don't.

In this instance, Mark not only connected his personal schema to make the text more concrete for himself, but he drew out an inference as well. Both strategies were used appropriately, and Mark's thoughts

confirmed the author's intended message.

Liz, too, used her personal schema appropriately in the same section of text:

“Children assimilated more quickly than their parents. They learned English in school and then helped their families learn to speak it.”

I know it's a lot harder to learn a language that you're not used to when you're older, 'cause I remember they started teaching me Spanish in high school and not in middle school or elementary school, and it was a lot harder for me, but my brother and sister are learning it right now in elementary school, and they know it five times better than I do.

Each participant's second protocol was complete with similar examples demonstrating strategies used at the appropriate time and place to deepen their understating of the text. Their thoughts in the second think-aloud appeared more authentic, as opposed to forced. This finding was of particular importance to the study, as research suggests that “students will transfer a strategy to their tasks if they possess the ‘how to employ’ or procedural knowledge of that strategy and the ‘why and when to use’ or the conditional knowledge” (Simpson, Stahl, & Francis, 2004, p. 3).

Change in Beliefs

Students must believe in the value of reading strategies if they are ever to utilize them on a consistent basis (Simpson & Nist, 2002). Unfortunately, many college students who are required to take developmental reading courses have “had a long history of literacy problems and years of instruction that failed, in their estimation, to enhance their literacy development and preparedness for college success” (Allgood, Risko, Alvarez, & Fairbanks, 2000, p. 203). This was evident in Ryan's explanation of a study skills course he was required to take in high school after failing a New Jersey standardized test. When asked about his feelings towards the course, Ryan explained he was “supposedly learn[ing] how to read, but [he didn't] think it happened.”

Students like Ryan may have little faith in college reading programs. Why should it work now when it has never worked in the past? This sentiment was evident among all five participants in this study. Often the strategies introduced in class were attempted with reluctance, particularly by those students who had a strong dislike towards reading classes. However, over time, the five participants came to acknowledge the value of the reading strategies. Below are some of the students' thoughts on when and why they altered their feelings towards the strategies and the reading class in general. Although each participant came

to acknowledge the value of the reading strategies in his or her own time, most believed this transition occurred when their understanding of a text increased.

Jillian's shift in conceptualizing the value to the reading strategies was perhaps the most profound. As a student whose discomfort with reading was deeply rooted, Jillian's conversion came later than most students. She explained:

J: Yeah. I thought [the strategies] were pretty strange at first. I'm like "I don't understand why we're learning this. How is this gonna help?"

I: Okay. And—

J: But afterwards, I was like, "Now I understand why we had to do all this stuff."

I: Okay. When do you think you made that change of thought?

J: Probably either at the end of [the first] semester or the beginning of [the second], because I realized that [the strategies] definitely helped.

I: In what ways, do you think?

J: Well, I understand [the text], and I think I'm becoming a better reader because I take my time when I read, instead of just like breezing through it. I take my time to try to understand word for word what's going on.

Mark experienced similar feelings with regard to the reading strategies early in the course. He believed that the reading strategies introduced "were gonna be pointless." His perspective began to shift "towards the end of the [first] semester" as he "found that [the strategies] actually meant something." He continued, "You were doing it for a reason, to make us comprehend more and make the text easier for us to understand."

Liz, who initially said she did not need developmental reading courses, came into the class doubting she could be taught anything useful. In her mind, she believed her reading capabilities were adequate and would be sufficient for success at college. However, as seen in the following discourse, she began to realize her reading skills were not as proficient as she thought they were upon entering college:

L: Well, at first, I didn't like [the developmental reading class], but then I began to like it a little bit.

I: Okay. And about how many classes into [the first semester] did you change?

L: Probably, I don't know, I guess maybe like halfway through because things started to make sense to me.

I: Okay. And do you remember what at first you weren't that fond of?

- L: I guess going over [the text], reading it, trying to pull out [my thoughts]...that didn't make sense, and then making connections and [the other strategies].
- I: Okay. So why halfway through do you think you changed your thoughts, your feelings?
- L: Because I realized that I really didn't understand what I was reading, and then when I was doing [the strategies], then [the text] became a lot clearer.

Liz's epiphany made her question her preparedness for college reading as well as her view of reading in general. In her interviews, Liz spoke repeatedly about the importance of decoding and understanding the words she read. She subscribed to the notion, as do many of the students in college reading courses, that understanding a text depended solely on understanding the words. She was correct in the sense that without comprehension at the word level, no meaning making can take place (Breznitz, 1997), but she believed understanding the words in a text led directly to comprehension. Her initial understanding of reading can be glimpsed in this statement: "Normally, I would just go and read [a text], and then if I didn't understand it, then I would try to look [the words] up, but it wouldn't really help me that much." Liz's belief that defining unknown words would automatically result in comprehension of a text began to unravel when she was faced with more complicated college texts. Hence, her view of her reading abilities began to shift, as did her perspective on the value of the strategies being introduced.

As Borkowski, Carr, Rellinger, and Pressley (1990) suggested, students who do not see the value in strategies will typically not benefit from strategy instruction. Students who do not have a repertoire of strategies to draw upon when faced with a challenging text will inevitably give up. Thus, it was crucial for these five participants to appreciate fully the power and the value of reading strategies.

Discussion

Reading behavior changed substantially for all five participants. Through their think-aloud protocols, they revealed movement from very basic declarative knowledge of strategies to deeper procedural and conditional knowledge. The students' enhanced knowledge seemingly allowed them to become more self-regulated readers. Additionally, the participants reported that they found themselves using the strategies independently when reading both academic and out-of-school texts. Many of them explained this phenomenon with some degree of astonishment, as if they stunned themselves when they realized they were using strategies without prompting. Jillian described how she "catches

herself every once in awhile" thinking about a text while reading. She reported that when she had downtime at work, she read articles on the front page of the newspaper, an activity she admitted she would never have thought of doing before. While reading, Jillian also described having "random thoughts," which in reality were strategies, such as, "Oh, I don't know what this word is," "Oh, this reminds me of this," or, "Oh, this is ridiculous!" It is clear through Jillian's words that she has indeed become a self-regulated reader as the use of reading strategies has permeated her reading behavior.

Similarly, Mark described how he noticed his reading behavior changing as well:

I'm not just reading [anymore]—because when I used to read, I used to just read it, and—like I just didn't process [the text] through my head. And now when I read, I actually think about [the text] and understand it.

His words led me to believe that Mark's earlier conception of reading was merely to move his eyes across the page, unaware that the words needed to come together in some way to make meaning. Further, in the last interview, Mark elaborated on how he was now able to better comprehend a text with the aid of the reading strategies:

I think [the reading strategies] did help me, because they helped me focus on [the text] more—because I actually had to read it and then write down what I think about [the text]. So I can't wander off [and say], "Oh, I'm done."

Other participants found that because they had been using the metacognitive strategies for two semesters, the strategies had become comfortable, and internalized. In other words, they had come to understand the strategies so well that using them while reading had become automatic. Liz explained, "Even if you don't realize [you're using a strategy] or write it down, you're still using it" in your head. In the same sense, Darren admitted he was not always consciously "aware" that he utilized the reading strategies. He explained, "I find myself doing [the strategies] sometimes... 'cause that's what I've been doing" over the course of the semester.

Being unable to transfer learned strategies to reading activities beyond the reading course has plagued college and adult literacy students and troubled their teachers (Cromley, 2005). Simpson and Nist (2000) suggested that there are certain ideas that college students must understand prior to transfer occurring:

For transfer to occur, students must understand strategies and be able to discuss "knowingly" the courses and tasks for which they are appropriate. In addition, students must understand the advantages of a

particular strategy, especially if they are expected to abandon their usual approaches, which may be more comfortable and accessible (p.538).

The five participants of this study appeared, from the evidence of their observations, to have experienced successful transfer of the strategies taught in their reading course to other reading situations. The notion of reading as thinking, and the practice of thinking while reading, constituted a tremendous step toward becoming a self-regulated reader for each of these students.

Salomon and Globerson (1987) wrote, "When mindfulness is instigated during the process of instruction it may compensate those who would not tend to be particularly mindful otherwise" (p.632). All five of the participants learned to be more mindful while reading as they applied the reading strategies to a variety of texts, shifted their reading behaviors, and consequently became more self-regulated readers.

Implications of the Study

My purpose in conducting this research was to educate not only myself, but also inform other instructors of developmental reading courses regarding ways to better serve a population of students who are growing in number every year. This study demonstrated the positive influence metacognitive reading strategies can have on college students' ability to self-regulate while reading. Thus, this researcher offers teaching methods that may serve to guide other educators in the field of developmental college instruction to assist their students in achieving improved reading abilities, and ultimately, greater success in college level classes.

Just as the findings of my literature review generally purport the benefits of teaching metacognitive strategies with elementary school students, I believe this study could increase awareness of the benefit these strategies have on readers at the college level. It should be noted, however, that the students did not become self-regulated readers overnight. The students, in many cases, did not buy into these strategies initially. Repeated modeling, practice, assessment, and continued feedback regarding these strategies were necessary to see progress. Students must be exposed to strategies more than once, and must have repeated opportunities to practice strategies after they are introduced (Simpson & Nist, 2003). Over time, students can begin to integrate the strategies into their reading process, so that they are focused on making sense of the text, rather than practicing the individual strategy (Hadwin & Winne, 1996). Sinatra, Brown, and Reynolds (2002) warned instructors to:

Make sure students know that strategies are a means to an end, not an end in themselves. Comprehension strategies are no more than tools

that readers employ in the service of constructing meaning from text. However, learning to use strategies can be such a challenging and time-intensive endeavor that students may place an undue emphasis on learning the strategy itself. In such cases, the text and comprehension end up taking a back seat (p.71).

Therefore, providing various, sustained opportunities to repeatedly practice these strategies would be optimal for college readers in developmental courses. Activities that incorporate authentic texts, written at a college level, would be most beneficial, as these types of text would prepare the students for real reading situations. Further, allowing students the opportunity to listen to how other classmates, as well as the teacher, utilize reading strategies would allow them to better grasp their value and scope. Over time, strategy usage can move from an activity in and of itself to an innate practice that happens without conscious effort.

The type of instruction described above takes a great deal of careful planning, commitment and sustained time (Pressley & Block, 2002). Achieving this presents significant challenges to college curriculum development. Colleges have historically relied on adjunct or part-time instructors to teach developmental courses. These positions generally lack permanence and respectable compensation, and frequently colleges must therefore hire individuals who are not highly qualified and may not have the appropriate education or experience to be effective (Maxwell, 1997). While my experience suggests that a degree in developmental reading is not necessary to teach a reading course at the college level, a successful instructor does need a strong foundation in current reading theories. Adjunct and part-time instructors may feel they are not compensated enough to devote the tremendous amount of time required to design and teach a course focusing on metacognitive strategies. Teaching basic, isolated skills in a traditional whole class setting is a much easier approach to teaching reading, requires less preparation time, and offers a more straightforward grading criterion (Simpson & Nist, 2003). Yet, research has found that teaching isolated, basic skills using prefabricated materials "provide[s] atypical practice opportunities in the form of paragraphs and multiple choice questions...and...[M]any students have difficulty modifying and transferring the reading and study strategies [taught this way] to their own textbooks and tasks" (Simpson & Nist, 2003, p.169).

To overcome these challenges, colleges with developmental reading programs might benefit by offering professional development opportunities on current reading theory and pedagogy to their developmental instructors. In-house professional development is more cost-effective and typically better received than outside programs. However, like the

developmental students, instructors need substantial time to learn, practice, and implement effective reading strategies into their curriculum. Past research supports this claim stating, "Teaching strategies well requires a deep understanding of the cognitive processes involved in comprehension and an ability to scaffold students through an apprenticeship in executing those processes successfully" (Sinatra, Brown & Reynolds, 2002, p.65).

Closing Thoughts

It has been shown in this study that there are teaching techniques and reading strategies that can significantly promote improved reading abilities in college students. As a college degree is increasingly viewed as generally essential for success, and correspondingly as more under-prepared students enter higher education, teaching reading effectively at the college level could not be more crucial.

Studies indicate that our most marginalized population of students receives instruction that is neither based in research, nor taught by instructors who understand reading theory (Maxwell, 1997). For many students, participating in a college reading course may not only be their last opportunity to significantly improve their reading abilities, but may also be a gatekeeper to the success of their college journey. These students deserve research-based instruction that not only addresses their reading deficits but also speaks to the underlying emotional impact of these deficits. Currently, this type of college level instruction is not the norm; however, as demonstrated in this study, such can be successfully accomplished through the implementation of metacognitive reading strategies.

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